

Work Order ID 57949

April 21, 2010 8:42:08 AM



Page 1

Item ID: D2741

Accept



Setup Start



Revision ID:

Item Name: Blade, 350 Skidtube

Stop



Start Date: 21/04/2010 Start Qty: 40.00



Cust Item ID:

Required Date: 28/04/2010 Req'd Qty: 40.00



Customer:

Reference:

Approvals:

Process Plan:

PL

Date: 10-4-21

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2741

Rev C

100



BAND SAW

0.00

Bandsaw

Memo

0.00

Jeaspa Bandsaw

Cut blanks 13.850" long +0.063" -0.000"

ml 10/04/25

20 0

110



HAAS CNC VERTICAL MACHINING #1

0.00

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FA108

ml 10/04/26
DT 10/04/27

20

120



QC2- Inspect parts off machine FAI/FAIB

0.00

QC

Memo

0.00

Quality Control

ml 10/04/26
DT 10/04/27

20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 57949

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Item ID:	D2741	Accept		Setup	Start	
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Start Date:	21/04/2010	Start Qty:	40.00			
Required Date:	28/04/2010	Req'd Qty:	40.00			
Reference:						
				Cust Item ID:		
				Customer:		

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00	SP 10/04/27			20	6		
140 Small Fab Small Fab	Small Fab Memo 1-Deburr□2-Bend per Dwg D2741	0.00 0.00	SP 10/04/28			20	6		
150 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00	Saloube			counto 20			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Item ID: D2741

Accept



Setup Start



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Item Name: Blade, 350 Skidtube

Stop



Start Date: 21/04/2010 Start Qty: 40.00



Cust Item ID:

Required Date: 28/04/2010 Req'd Qty: 40.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 Outsource1	Outsource process - Heat Treat	0.00							
	Memo	0.00							
	Outsource process - Heat Treat								
	Issue P/O: <u>11780</u> <input type="checkbox"/> Harden material as per Dwg D2741 <input type="checkbox"/> Min. Ultimate Tensile Strength = 152 ksi (34-40 HRC) <input type="checkbox"/> Min. Yield Tensile Strength = 141 ksi <input type="checkbox"/> Test report or Certification required								
170 Packaging	Receive & Inspect for Damage & Mat'l Certs	0.00							
	Memo	0.00							
	Packaging								
	Ensure Test report or Certification attached								
180 QC	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00							
	Quality Control								

CY 10/4/29 20

16/10/20 (20)

8/10/25

counts
420

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Work Order ID 57949

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Item ID:	D2741	Accept		Setup	Start	
Revision ID:						
Item Name:	Blade, 350 Skidtube				Stop	
Start Date:	21/04/2010	Start Qty:	40.00			
Required Date:	28/04/2010	Req'd Qty:	40.00			
Reference:				Cust Item ID:		
				Customer:		

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	Small Fab Finishing	0.00							
	Small Fab	0.00				20			
	Small Fab								
	Small Fab Finishing								
	Small Fab								
	clean with wash + wipe per Q52005								
	wipe clean with Red scratch white buff Powder coating								
200	White Gloss(Ref:4.3.5.2) per QSI005 4.3-Steel	0.00							
	Powdercoat	0.00							
	Powder Coating								
	Memo								
	START TIME: 12:50								
	400° FINISH TIME: 1:20								
	OVEN TEMPERATURE:								
						20			
210	QC3- Inspect Part Finish	0.00							
	QC	0.00							
	Quality Control								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

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Revision ID:						
Item Name:	Blade, 350 Skidtube				Stop	
Start Date:	21/04/2010	Start Qty:	40.00			
Required Date:	28/04/2010	Req'd Qty:	40.00			
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	Identify as per dwg & Stock Location: <i>ST</i>	0.00							
Packaging	Memo	0.00	<i>M-F</i>	<i>10/06/18</i>		<i>(20X)</i>			
Packaging									
230	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

10/06/21 *MF*
10-6-18

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April 21, 2010 8:42:12 AM

Page 1

Work Order ID: 57949

Parent Item: D2741

Parent Item Name: Blade, 350 Skidtube

Start Date: 21/04/2010

Required Date: 28/04/2010

Comments: IPP Rev: D ☐ 00.11.15 ☐ Removed P/O turning - in house process ☐ EC
 IPP Rev: E 06-03-20 As Per Rev C JLM
 IPP Rev: F ☐ 06.04.20 ☐ Added grinding after heat treating ☐ EC ☐

Start Qty: 40.00

Required Qty: 40.00

Component Item ID/	Replacement	Mfg/	Bin	Primary	Last	Route	Unit of	Qty on	Remaining	Qty	Date	Status
M4130NB0.500X03.00		Purchased	No			100	f	48.6000	48.5937			

0



4130 Bar 0.500 x 3.00



Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

MAT034

48.6

114044

24

→ 114160

24.6

24.6 ml 10/04/25

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

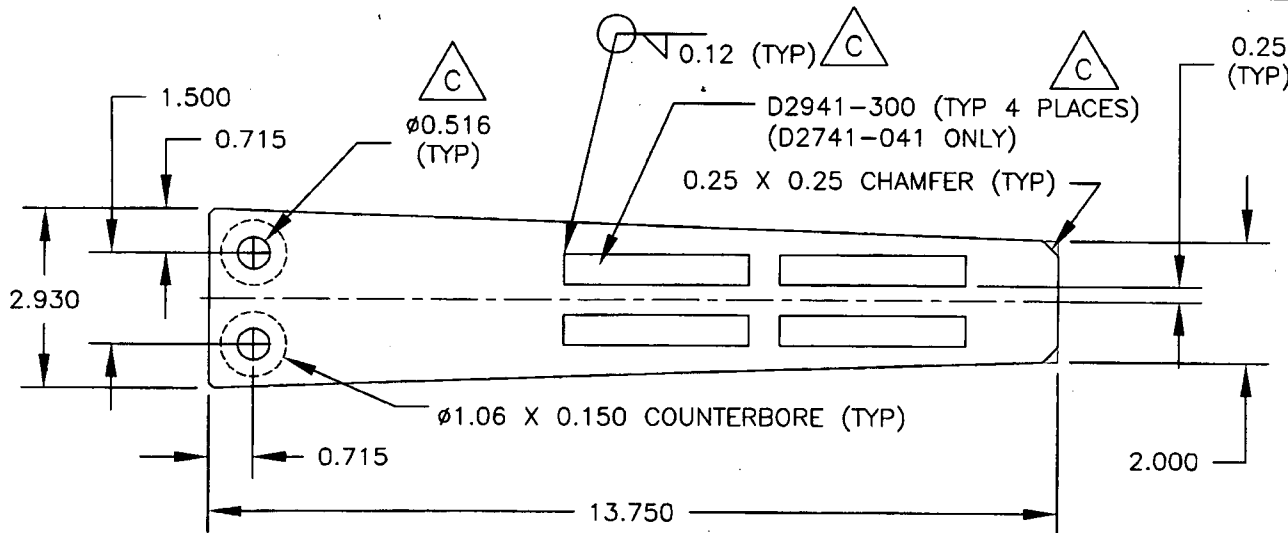
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

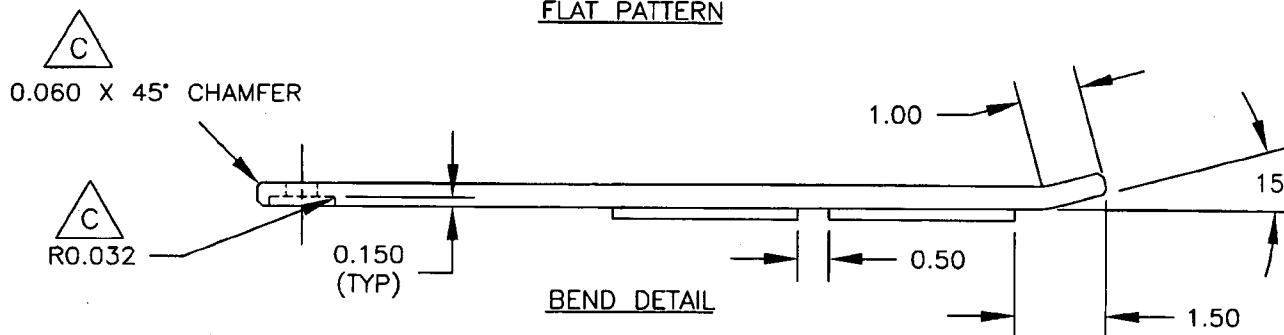
NOTE: Date & initial all entries

DART

RELEASED
06.02.07



FLAT PATTERN



BEND DETAIL

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 57949
BS10-4-21

D2741 BLADE

- 1) MATERIAL: AISI 4130 STEEL 0.375 THICK
MIN. ULTIMATE TENSILE STRENGTH = 152 ksi (34-40 HRC)
MIN. YIELD TENSILE STRENGTH = 141 ksi
- 2) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES 0.030 TO 0.060
- 6) TO MAKE D2741-041, WELD D2941-300 (4) AS SHOWN ABOVE.
REMOVE POWDER COAT FROM SURFACE OF D2941-300
- 7) TO MAKE D2741-043, WELD 7560 HARDCOAT ROD INSTEAD OF D2941-300

DESIGN	DRAWN BY	DART AEROSPACE USA, INC.	PORT HADLOCK, WA	REV. C
CHECKED <i>gt</i>	APPROVED <i>gt</i>	DRAWING NO.		
DATE		D2741		SHEET 1 OF 1
06.01.12		TITLE		SCALE
		BLADE		1:3
A	98.04.16	NEW ISSUE		
B	98.09.01	CHANGE C'SINK TO C'BORE		
C	06.01.12	LARGER HOLE ADD RADIUS AND CHAMFER ADD -041/-043 OPTIONS		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO11790

Purchase Order Date 4/29/10

PO Print Date 4/29/10

Page Number 1 of 1

Order From :

VC-MET004

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

FAKED
4/29/10

Contact Name

Vendor Phone 450 473 1884

Vendor Fax 450 491 5498

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

Currency

CAD

FOB

Ship To :

DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	57949	D2741 BLADE	5/06/10 Yes	20.00	Purolator ground	\$15.5000	\$310.00

Special Inst: HARDEN MATERIAL AS PER DWG
D2741 REV.C
B57949
MINIMUM YIELD TENSILE STRENGTH
= 141 KSI
MINIMUM ULTIMATE TENSILE
STRENGTH = 152 KSI
(34-40 HRC)

PO Total:

\$310.00

CERTIFICATE OF CONFORMITY
REQ'D UPON DELIVERY

Change Nbr: 1

Change Date: 4/29/10

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison

Order	Shipper	Shipping Seq.
157260	1	41775

Shipped Complete

Customer **215**
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Shipped To:
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO11790		4130	2010/4/30	

Quantity	Part No. / Part Name / Part Description	Pounds
20	D2741 BLADE 2 MIXTES	72,

Container Type	# Of Containers	Container Comments
MIXTES	2	

CERTIFICAT REQUIS

PACKING	
----------------	--

Quantity Shipped: 20
Pounds Shipped: 72,00
Quantity Remaining: 0
Pounds Remaining: 0,00

CERTIFICAT REQUIS

Quantity Shipped: 20

Pounds Shipped: 72,00

Signature:

Date:

Shipped ON: 2010/05/18



Metcor Inc.
 569, boul. Arthur-Sauvé
 St-Eustache (Québec) J7R 5A8
 Tél.: (450) 473-1884
 Fax Administration: (450) 491-5498
 Fax Production : (450) 491-6454

Rapport d'inspection

Order	Load
157260	1

Customer: 2/5
 DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K8A 1K7

Shipped To:
 DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K8A 1K7

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
PO11797		4130		

PROCESSING SPECIFICATIONS

SEL HARDEN
 HARDEN AND TEMPER
 SAE AMS 2759/1 REV.E

S10100105

Requirement	Specified	Tests Performed	Test Results
HARDNESS	34 - 40 HRC	20	38 - 39 HRC
TENSILE (KSI)	152 - 182 KSI		171 - 177 KSI

Quantity	Weight	Part Number / Part Description
20	72	D2741 BLADE 2 MIXTES

COMMENTS

INSPECTOR:

Smith

DATE: 2010-05-18

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ

ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
157260	1

Customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
PO11790		4130		

PROCESSING SPECIFICATIONS

SEL HARDEN

HARDEN AND TEMPER

SAE AMS 2759/1 REV.E

Requirement	Specified	Tests Performed	Test Results
HARDNESS	34 - 40 HRC	20	38 - 39 HRC
TENSILE (KSI)	152 - 182 KSI		171 - 177 KSI

Quantity	Weight	Part Number / Part Description
20	72	D2741 BLADE 2 MIXTES

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
1.00	LAVAGE		si nécessaire							
2.00	COMPTAGE									
PREPARINC										
3.00	1000	1:00 1:30	air			133	05-12-10	7:30	8:45	05-12-10
PREHEAT 1										
4.00	1575	0:40	SEL		BRINE	106	05-12-10	8:45	9:25	05-12-10
SEL HARDE										
5.00	150	0:30	soap			150	05-12-10	9:45	10:45	05-12-10
WASH										
6.00	400	2:00	air			609	05-12-10	10:45	12:55	05-12-10
SNAP TEMF										
7.00										
DIST INSP										
8.00			Sablage							
SANDBLAS										

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ

ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
157260	1

Customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
9.00 TEMPER	875 +/-10°F	4 hrs	air			635	05-17-10	19:30	2:20	05-18-10
10.00 HARDN INS										
11.00 SANDBLAS			Sablage							
12.00 HUILAGE			huile							
13.00 FINAL INSP										05-18-10

COMMENTS

APPROVED BY:

Jonathan Bozon

DATE: 2010-05-19

We certify that all the information on this report is exact and in accordance with the order requirements. / Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client.